

Get Your Nozzlemen Certified

By Ted W. Sofis

In 1998 we started a shotcrete project on a dam near Altoona, PA, that called for nozzleman certification. I initially resisted. After all, our company had been in the business since 1959 and I personally had been doing shotcrete work since 1971. I felt offended. Typically, engineers would require the contractor to have at least 5 to 10 years of shotcrete experience and to have successfully completed several similar projects. In addition to this, the shotcrete superintendent and nozzleman were typically required to have a minimum of 5 years of experience. So I called the government agency for which we were doing the job and offered to submit our credentials and our employee resumes. They were firm that the

project specification required certified nozzlemen. I called the American Concrete Institute (ACI) only to find out that the nozzleman certification program was not yet up and running. The ASA and ACI nozzleman certification programs have both come a long way since their beginnings in 1998. Over time, ASA has become the major resource for shotcrete-related dialogue, a forum for discussion, and the primary sponsor for ACI nozzleman certification.

Today, nozzleman certification is required on a growing number of private and public projects. It provides certification from an impartial third party that acceptable standards of education and competence have been achieved.



A shotcrete panel form with the simulated reinforcing bars



The gunning of an overhead panel during the certification



The scaffolding set up for both the overhead and vertical panels



Nozzleman shooting his overhead shotcrete panel

Technical Tip

There is a confident self-reliance that most experienced shotcrete people have, and we take pride in our skills and our abilities. Those attributes are part of what makes a good nozzleman. Of course, this pride also makes most nozzlemen reluctant to have an outside party evaluate their level of skill. This is something we must get past—after all, it's not about ego. It's about providing assurance to the owners, engineers, and specifiers that the basic level of education and competence has been attained.

I eventually joined ASA and, despite my ego, I made arrangements for the education and testing of our shotcrete personnel. Among the individuals we had tested were nozzlemen with over 30 years and as little as 5 years of shotcrete experience and, believe it or not, they all came through the process unscathed. We had the scaffold with overhead and vertical panels set up beforehand. The classroom session, the written examination, and both the overhead and vertical gunning were all accomplished in 2 days. The shotcrete panels were then core



The core drilling of a shotcrete panel to see the encapsulation of the reinforcing bars



The core drilling of the shotcrete panels to see the encapsulation of the reinforcing bar



The gunning of a vertical panel with Examiner Ray Schallom looking on



The core drilling of the shotcrete panels the day after gunning



The gunning of a vertical panel with dry-process shotcrete



Certification classroom session conducted by Examiner Ray Schallom

Technical Tip

drilled and the nozzlemen were able to see the quality of their work firsthand. Despite everything that you think you know, you learn a few new things. It was a positive experience for me and it was relatively painless for the session attendees.

Undertaking certification is something all of us in the industry should welcome. It lends credibility to the craftsman, the contractor, and to the process.



Nozzlemen taking the written portion of the examination



Gunning field testing, classroom testing, and core drilling of gunned samples are complete

It is not an indictment of your ability or experience, but an assurance to your customers. So if you haven't had your employees certified, consider doing it. In years past, the quality of some shotcrete projects have been inconsistent and below standard. Good practices and quality workmanship benefit all of us, and anything that improves the standard of workmanship is good for the shotcrete industry.



Ted W. Sofis and his brother, William J. Sofis Jr., are principal owners of Sofis Company, Inc. After graduating from Muskingum College, New Concord, OH, with a BA in 1975, he began

working full time as a shotcrete nozzleman and operator servicing the steel industry. He began managing Sofis Company, Inc., in 1984 and has over 34 years of experience in the shotcrete industry. He is an ASA-approved Shotcrete Nozzleman Educator, is the Treasurer for ASA, and is a member of the ASA Publications and Education Committees. Over the years, Sofis Company, Inc., has been involved in bridge, dam, and slope projects using shotcrete, as well as refractory installations in power plants and steel mills. Sofis Company, Inc., is a member of the Pittsburgh Section of the American Society of Highway Engineers (ASHE) and ASA.